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Analytical Study of Workforce Potential Enhancement and Socio-Economic Development

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Improving the inherent abilities and skills of the workforce is crucial not only for their personal and familial prosperity but also for the overall advancement of society. This study aimed to meet the criteria of 8th Sustainable Development Goal "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" by investigate how on-the-job training, work environment, and upskilling impact the social and economic development of industrial workers and their families in Punjab, Pakistan. To gather quantitative data, a survey approach was employed along with structured interviews, utilizing a random sampling strategy. Statistical analysis of the data was conducted using SPSS software, employing various tests for univariate, bivariate, and multivariate analysis. The findings revealed that on-the-job training, upskilling, and satisfaction with the work environment significantly contribute to the socio-economic development of industrial workers and their families.

Keywords: workforce, Potential enhancement, upskilling, work environment, on the job training, socio-economic development.

INTRODUCTION

Understanding the interplay between workforce potential and economic growth is crucial for socio-economic development. Workforce potential encompasses the collective skills, knowledge, and capabilities of a population, which are essential drivers of economic productivity and innovation. A skilled workforce not only boosts productivity but also fosters technological advancements and the creation of new products and services. This, in turn, contributes to sustained economic growth. Investments in education, healthcare, and skills development are vital for enhancing human capital, a key determinant of workforce potential required to achieve 8th SDG "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". Therefore, maximizing workforce potential requires strategic investments and supportive policy environments to achieve the target within time limits of SDG.

Literature Review: Research, such as that by Hanushek (2013), emphasizes the importance of cognitive skills for economic growth, shifting attention to the quality of education. Effective on-the-job training programs, as highlighted by studies like Luis and Joop (2005), have been shown to enhance earnings and productivity significantly,

contributing to overall economic benefits. Similarly, studies like Máñez *et al.* (2008) underscore the positive impact of training investments on productivity and innovation, thereby fostering economic growth.

The work environment plays a crucial role in influencing productivity and innovation. Gino and Bradley (2012) demonstrate how various aspects of the work environment, such as organizational culture and leadership, can foster employee engagement and collaboration, essential for driving economic growth. Ahlberg *et al.* (2020) argue that creating a conducive work environment for innovation is essential for sustaining economic growth in today's knowledge-based economy. Additionally, Abowd *et al.* (2014) highlight the positive effects of factors like workplace safety and employee satisfaction on firm productivity, indicating the significance of investing in the work environment.

With the onset of Industry 4.0, reskilling and upskilling initiatives are imperative for a future-ready workforce. Li (2022) stresses the importance of lifelong learning and advocates for accessible and affordable learning opportunities. Panth (2014) underscores the need for transformative changes in the skills training ecosystem to meet the demands of the labor market and capitalize on economic opportunities.

MATERIALS AND METHODS

The study was quantitative in nature and was conducted in Punjab Pakistan. Through simple random sampling Central Punjab was selected from three major regions of Punjab. An industrial City Faisalabad was also selected randomly. To recruit the industrial labor as respondent textile factories and employees were selected conveniently from Faisalabad. The sample size (399 industrial workers) was selected by using Taro Yamani Method. Survey method and structured Interview schedule was used to collect the data. Univariate, bivariate and multivariate statistical analysis was made to analyze the collected data by using SPSS with appropriate statistical techniques. The dependent variable (Socio-economic Development) was computed and recoded through SPSS. The recoded dependent variable was originally based on the questions about the socio-economic developmental factors at familial level such as developments in education, overall health, income, savings, social status.

RESULTS AND DISCUSSIONS

Table 1 delves into the interplay between involvement in upskilling endeavors and levels of socio-economic development, categorized as High, Medium, and Low. Among individuals deeply engaged in upskilling activities, a striking 65.4% hail from families enjoying high socio-economic development, while 34.1% originate from families with medium socio-economic status, leaving a mere 0.5% from families with low socio-economic development. This underscores a clear trend where a majority of those deeply involved in upskilling initiatives emerge from families with elevated socio-economic standings, hinting at a positive correlation between robust upskilling engagement and higher socio-economic status. Conversely, individuals engaging in upskilling to a moderate degree exhibit a diverse distribution across socio-economic strata. Only 3.1% of this cohort originate from families with high socio-economic development, while a considerable 67.5% hail from medium socio-economic backgrounds, with 29.4% coming from families with low socio-economic status. This nuanced

pattern reveals a more varied engagement in upskilling across different socio-economic brackets, with a significant portion participating to a moderate extent stemming from medium and low socio-economic backgrounds.

Remarkably, among those who abstain entirely from upskilling activities, a notable 3.7% are from families enjoying high socio-economic development, while a striking 96.3% belong to families with low socio-economic standing. This glaring contrast underscores a substantial disparity in upskilling participation, with the overwhelming majority of non-participants originating from families entrenched in low socio-economic conditions. The statistical analysis employing chi-square and Gamma statistics further elucidates the relationship between upskilling engagement and socio-economic development levels. The chi-square statistic of 323.477 yields a p-value of 0.000, indicating a significant relationship between these variables. This robust statistical evidence underscores a strong association between engagement in upskilling activities and socio-economic development levels. Furthermore, the Gamma statistic of 0.954 bolsters this assertion, suggesting a high degree of correlation between the two variables, further substantiating the strength of the association.

Table 2 provides insights into the distribution of individuals receiving various levels of training programs across different socio-economic development tiers, namely High, Medium, and Low. Among those benefiting from comprehensive training programs, a substantial 58.7% originate from families enjoying high socio-economic development, with 39.9% coming from medium socio-economic backgrounds, and a mere 1.4% from families with low socio-economic status. This delineates a clear trend where a majority of individuals receiving comprehensive training programs hail from families with elevated socio-economic standings, suggesting a positive correlation between robust training programs and higher socio-economic status.

Conversely, individuals receiving occasional trainings exhibit a more diversified distribution across socio-economic strata. Merely 3.1% of this cohort come from families with high socio-economic development, while a significant 67.7% stem from medium socio-economic backgrounds, with 29.1%

Table 1. Cross tabulation between upskilling and socio-economic development.

Upskilling		Variable Socio-economic Development			
		High	**Medium**	**low**	**Total**
To Great extent	F	121	63	1	185
	%	65.4%	34.1%	0.5%	100.0%
To some extent	F	5	108	47	160
	%	3.1%	67.5%	29.4%	100.0%
Not at all	F	2	0	52	54
	%	3.7%	0.0%	96.3%	100.0%
Total	F	128	171	100	399
	%	32.1%	42.9%	25.1%	100.0%
Chi-square. 323.477 (.000)			Gamma. .954 (.000)		

Table 2. Cross tabulation between on-job training and socio-economic development.

Independent variable on-job training		Dependent variable Socio-economic Development			
		High	Medium	low	Total
Proper training program	F	122	83	3	208
	%	58.7%	39.9%	1.4%	100.0%
Occasional Trainings	F	4	86	37	127
	%	3.1%	67.7%	29.1%	100.0%
No on job Training	F	2	2	60	64
	%	3.1%	3.1%	93.8%	100.0%
Total	F	128	171	100	399
	%	32.1%	42.9%	25.1%	100.0%
Chi-square. 305.578 (.000)		Gamma. .941 (.000)			

Table 3. Cross tabulation between satisfaction with wok Environment and socio-economic development.

Satisfaction with wok Environment		Socio-economic Development			
		High	Medium	Low	Total
To great extent	F	121	57	2	180
	%	67.2%	31.7%	1.1%	100.0%
To some extent	F	2	112	17	131
	%	1.5%	85.5%	13.0%	100.0%
Not at all	F	5	2	81	88
	%	5.7%	2.3%	92.0%	100.0%
Total	F	128	171	100	399
	%	32.1%	42.9%	25.1%	100.0%
Chi-square. 427.555 (.000)		Gamma. .937 (.000)			

originating from families with low socio-economic status. This nuanced pattern underscores a varied participation in occasional training programs across different socio-economic strata, with a larger proportion receiving such trainings from medium socio-economic backgrounds and a notable portion from low socio-economic backgrounds.

Furthermore, among individuals deprived of on-job training, a glaring 93.8% belong to families entrenched in low socio-economic development, with a mere 3.1% each originating from families with medium and high socio-economic status. This stark contrast highlights a significant disparity in training participation, with the overwhelming majority of non-recipients originating from families entrenched in low socio-economic conditions.

The statistical analysis employing chi-square and Gamma statistics further illuminates the relationship between receipt of on-job training and socio-economic development levels. The chi-square statistic of 305.578 yields a p-value of 0.000, indicating a significant relationship between these variables. This robust statistical evidence underscores a strong association between receipt of on-job training and socio-economic development levels. Additionally, the Gamma statistic of 0.941 bolsters this assertion, suggesting a high degree of correlation between the two variables, further substantiating the strength of the association.

Table 3 reveals insights into the distribution of individuals' satisfaction levels with their work environment across various socio-economic development tiers. Among those highly satisfied with their work environment, a significant 67.2%

hail from families with high socio-economic development, indicating a positive correlation between high satisfaction and elevated socio-economic status.

Conversely, individuals somewhat satisfied with their work environment display a more diversified distribution across socio-economic strata, with a substantial 85.5% originating from families with medium socio-economic development.

Furthermore, among those entirely unsatisfied with their work environment, a notable 92.0% belong to families entrenched in low socio-economic development.

The statistical analysis employing chi-square (427.555 (.000)) and Gamma (.937 (.000)) statistics confirms a significant relationship between satisfaction with the work environment and socio-economic development levels. The robust statistical evidence underscores a strong association between these variables, with a high degree of correlation further substantiating the relationship.

The standardized coefficients Table 4 presents the results of a multiple linear regression analysis examining the relationship between workforce potential enhancement variables (On-job training, Upskilling, Satisfaction with work environment) as independent variables and socio-economic development as the dependent variable.

The constant term represents the estimated value of the dependent variable when all independent variables are zero. In this case, the constant is 0.437, indicating the baseline level of socio-economic development when there is no influence from the independent variables. The standardized coefficients (Beta) representing the strength and direction of the

relationship between each independent variable and socio-economic development, holding other variables constant. A positive Beta indicates a positive relationship, meaning an increase in the independent variable is associated with an increase in socio-economic development. A negative Beta indicates a negative relationship, meaning an increase in the independent variable is associated with a decrease in socio-economic development.

Table 4. Multiple linear regression table between workforce potential enhancement related variables (independent) and socio-economic development variable (dependent).

	Standardized coefficients Beta	T	Sig.
Constant	0.437	7.446	0.000
On-job training	0.263	3.973	0.000
Upskilling	0.232	4.012	0.000
Satisfaction with work environment	0.418	6.379	0.000
$R^2 = .667$			

In this case, all Beta are positive, indicating that higher levels of on-job training, upskilling, and satisfaction with the work environment are associated with higher levels of socio-economic development. The T-values indicate the significance of each coefficient, with higher T-values suggesting greater significance. All variables have significant T-values ($p < 0.05$), indicating that they are statistically significant predictors of socio-economic development. The R-squared value ($R2 = 0.667$) indicates the proportion of variance in the dependent variable (socio-economic development) explained by the independent variables (On-job training, Upskilling, Satisfaction with work environment). This means that 66.7% of the variability in socio-economic development can be explained by the three independent variables included in the model. The multiple linear regression analysis suggests that on-job training, upskilling, and satisfaction with the work environment are significant predictors of socio-economic development. The findings from the regression analysis align with the patterns observed in the cross tabulations, indicating a consistent relationship between these variables across different analytical approaches.

***Conclusion*:** The individuals who receive more on-job training, engage in upskilling activities, and report higher levels of satisfaction with their work environment are likely to belong to families with higher levels of socio-economic development. This implies that investing in workforce development, including training programs and improving work environments, can contribute positively to socio-economic development.

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